STRUCTURE OF A MESH SUPPORTING FRAME OF A MESH CHAIR AND ASSEMBLY OF THE MESH CHAIR

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ABSTRACT

A mesh chair includes a mesh supporting frame, and a mesh positioned over and joined on the mesh supporting frame; the mesh supporting frame has several joining post portions spaced apart on a loop-shaped side thereof; the mesh is stretched to a tense state and joined on the mesh supporting frame with the joining post portions of the frame being passed through the openings on the periphery thereof; afterwards, a wrapping layer is formed over and around the joint between the mesh and the mesh supporting frame by injection molding to join the mesh and the mesh supporting frame together; thus, the mesh is firmly joined on the mesh supporting frame, having such a tension and elasticity as to provide supporting force to a sitter on the mesh chair.
STRUCTURE OF A MESH SUPPORTING FRAME OF A MESH CHAIR AND ASSEMBLY OF THE MESH CHAIR

BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention

[0002] The present invention relates to an assembly structure of a mesh and a mesh supporting frame of a mesh chair, more particularly one, which allows the mesh to be joined on the mesh supporting frame in a tense state; in assembly, the mesh supporting frame has joining post portions thereon, and the mesh is joined on the frame with the joining post portions being passed through openings of its periphery, and a wrapping layer is formed over the joint by injection molding.

[0003] 2. Brief Description of the Prior Art

[0004] People’s demand for high quality products is increasing with heightening of living standard. For instance, besides being comfortable and designed according to ergonomics, chairs have to have a unique and novel appearance to attract consumers. A wide variety of chairs are available to meet people’s need, e.g., stools, ottomans, office chairs, and leisure chairs. Mesh chairs are very comfortable and getting popular because their seats and backs come in an ergonomically curved frame equipped with a tense mesh allowing air to pass through.

[0005] A currently existing chair back includes a frame, and a cushion. The frame has an annular groove on the surface, and the cushion is joined on the frame with its periphery being fixed in the annular groove by means of fixing elements. Moreover, a pressing strip is fixed over the periphery of the cushion.

[0006] Another currently existing chair back structure includes a front frame, a rear frame, and a mesh. In assembly, the mesh is stretched, and joined to a front side of the front frame with its periphery extending to a circumferential portion of the front frame. Next, the rear frame is joined on the circumferential portion of the front frame so that the periphery of the mesh is firmly sandwiched between the front and the rear frames. Thus, one can feel comfortable on the mesh when sitting on the chair.

[0007] However, the first one of the above-mentioned chair backs has a drawback: the pressing strip can’t firmly fix the cushion to the frame, and in turn the cushion can become loose after having been used a certain length of time. And, the second one of the above-mentioned chair backs has a similar drawback: the periphery of the mesh is prone to move relative to the frames owing to the sitter’s weight. Consequently, the mesh will lose its tension, and become less comfortable after having been used for a certain length of time.

[0008] Some manufacturers developed a way to fix a mesh to a frame part of a backseat of a chair in order to overcome the above problems: the periphery of the mesh is fixed on the frame part by means of nails; thus, the periphery of the mesh can’t move relative to the frame part owing to the sitter’s weight. However, such chair seatback takes relatively much time to assemble. Consequently, the above-mentioned chairs aren’t suitable for mass production.

[0009] Another way was developed to join a mesh and a mesh supporting frame of a mesh chair more firmly together, which includes the following steps: first, an inner frame part is made by means of injection molding; second, a mesh is joined on the inner frame part in a tense state; third, injection molding is carried out to form a wrapping layer over an outer frame part of the mesh supporting frame.

[0010] A way to join a mesh and a mesh supporting frame of a seat/back of a mesh chair firmly together was also developed, which includes the following steps: first, an elastic mesh is cut to have the same shape as the chair seat/back; second, a strip is firmly joined on a periphery of the elastic mesh to become a loop, with the mesh periphery completely covering the strip; third, the loop-shaped strip together with the mesh is positioned in a mold, and injection molding is carried out to form a wrapping layer over the joint between the mesh and the loop-shaped strip.

[0011] The two above-mentioned ways enable the mesh to be firmly joined on the frame without the risk of both separating from each other easily. However, they are found to have the following drawbacks: the mesh isn’t in a sufficiently stretched state when injection molding is being carried out to form the wrapping layer. Consequently, the mesh doesn’t have enough tension and strength for allowing a sitter to be supported thereon comfortably.

[0012] Some manufacturers developed a high frequency wave hot-press method to join a mesh and a frame of a mesh chair. However, it is relatively difficult to firmly join the mesh to the frame with high frequency wave hot-press method because the frame has an ergonomically curved shape. Moreover, such a high frequency wave hot-press method consumes relatively much energy, and the mesh can be deformed by heat. And, because the mesh and the frame are made of different materials, it is difficult to make both firmly joined together with heat of high frequency wave.

[0013] Therefore, it is a main object of the present invention to provide an improvement on an assembly structure of a mesh and a mesh supporting frame of a mesh chair to overcome the above problems.

SUMMARY OF THE INVENTION

[0014] A mesh chair in accordance with an embodiment of the present invention includes a mesh supporting frame, a mesh, and a wrapping layer firmly joining the mesh and the mesh supporting frame together. The mesh supporting frame has several joining post portions spaced apart on a loop-shaped side thereof, and the mesh is stretched to a very tense state and joined on the mesh supporting frame with the joining post portions of the frame being passed through openings on the periphery thereof. Afterwards, injection molding is carried out to form the wrapping layer over and around the joint between the mesh and the mesh supporting frame; thus, the mesh is firmly joined on the frame, having relatively great tension and elasticity as to provide sufficient supporting force and comfort to a sitter on the mesh chair.

BRIEF DESCRIPTION OF THE DRAWINGS

[0015] The present invention will be better understood by referring to the accompanying drawings, wherein:

[0016] FIG. 1 is an exploded perspective view of the present invention,

[0017] FIG. 2 is a fragmentary exploded perspective view of the present invention,

[0018] FIG. 3 is a partial sectional view of the present invention,

[0019] FIG. 4 is a fragmentary exploded perspective view of a first preferred embodiment of the present invention,

[0020] FIG. 5 is a partial sectional view of the first preferred embodiment,

[0021] FIG. 6 is a sectional view of the present invention,
FIG. 7 is a partial sectional view of a second preferred embodiment of the present invention.

FIG. 8 is a partial sectional view of a third preferred embodiment of the present invention, and

FIG. 9 is a partial sectional view of a fourth preferred embodiment.

**DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS**

Referring to FIGS. 1 and 2, an assembly of a mesh chair in accordance with the present invention is illustrated. The mesh chair includes a mesh supporting frame 1, and a mesh 2 positioned over and joined on the mesh supporting frame 1; in assembly, first the mesh 2 is joined on the mesh supporting frame 1, and next injection molding is carried out to form a wrapping layer 3 over the joint between the mesh 2 and the mesh supporting frame 1.

The mesh supporting frame 1 has a hollow portion 11 on a middle thereof, and several supporting ribs 12 joined thereon, which extend across the middle hollow portion 11. The supporting ribs 12 bend rearwardly of the mesh supporting frame 1; thus, a recessed portion 13 exists in front of the supporting ribs 12 on the front side of the mesh supporting frame 1.

In addition, the mesh supporting frame 1 has several joining post portions 14 spaced apart around the middle hollow portion 11 on a rear side thereof; the joining post portions 14 preferably become gradually narrower towards their rear ends for allowing the mesh 2 to be easily joined thereon. The mesh supporting frame 1 further has loop-shaped containing cavities 15 formed on two sides of the joining post portions 14 on the rear side thereof.

In assembly, referring to FIGS. 1 and 2, first the mesh 2 is positioned over the front side of the mesh supporting frame 1, and pulled rearwardly of the mesh supporting frame 1 so that the mesh 2 is tense with a periphery thereof being positioned on the rear side of the mesh supporting frame 1, and with the joining post portions 14 of the mesh supporting frame 1 sticking out through openings of the mesh 2; because the joining post portions 14 become gradually narrower towards their rear ends, they can pass through the openings of the mesh 2 easily. Thus, the mesh 1 is tense, and joined on the mesh supporting frame 1.

Afterwards, referring to FIG. 3 as well, the periphery of the mesh 2 is pushed into the containing cavities 15 on two sides of the joining post portion 14 of the mesh supporting frame 1 so that the periphery is held in the containing cavities 15 in a neat manner. Next, injection molding is carried out to form the wrapping layer 3 in the containing cavity 15 as well as on the rear side of the mesh supporting frame 1; in other words, the containing cavity 15 will be stuffed with the wrapping layer 3, and the rear side of the mesh supporting frame 1 will be at least partly covered with the wrapping layer 3. Therefore, the mesh 2 is firmly joined on the mesh supporting frame 1 to be tense and elastic, and a sitter of the mesh chair will feel comfortable when resting on the mesh 2.

Shown in FIGS. 4 and 5 is the first preferred embodiment of the present invention, wherein several pressing strips 4 are pressed into the containing cavities 15 of the mesh supporting frame 1 after the periphery of the mesh 2 is pushed into the containing cavities 15; thus, the periphery of the soft and elastic mesh 2 will certainly be held in the containing cavities 15 without sticking out to spoil the appearance of the mesh chair after the wrapping layer 3 is formed on the mesh supporting frame 1 by means of injection molding.

Moreover, the pressing strips 4 are preferably formed with several through holes 41 thereon; thus, the wrapping layer 3 will be formed with several post-shaped protrusions 31 held in the through holes 41 of the pressing strips 4, and therefore can be firmly joined to the pressing strips 4. Furthermore, some of the injected melted materials will flow onto the periphery of the mesh 2 through the through holes 41 of the pressing strips 4, and in turn the wrapping layer 3 is firmly joined to the mesh 2.

Referring to FIG. 6, the above-mentioned structure of the mesh supporting frame and mesh combination of the present invention can be applied to a seat, back, and headrest of the mesh chair so that the sitter can feel comfortable owing to the excellent elasticity of the mesh.

The second preferred embodiment of the present invention is illustrated in FIG. 7, wherein the mesh supporting frame 1 has post-shaped portions 14 formed on the front side instead of the rear side. Therefore, the mesh 2 has to be positioned over only the front side of the mesh supporting frame 1 in order for the post-shaped portions 14 to pass through the openings of the mesh 2 in assembly.

Shown in FIG. 8 is the third preferred embodiment of the present invention, wherein several joining post portions 14 are formed on a circumferential portion of the mesh supporting frame 1 instead of the rear side of the frame 1; thus, in assembly, the periphery of the mesh 2 only has be pulled and joined to the joining post portions 14 formed on the circumferential portion of the mesh supporting frame 1 in order to join the mesh 2 to the mesh supporting frame 1.

Shown in FIG. 9 is the fourth preferred embodiment of the present invention, which includes a mesh supporting frame 1, a mesh 2, and an insertion piece 141; the mesh supporting frame 1 has a joining cavity 16 thereon; the insertion piece 141 has several joining post portions 14 sticking from a top side, and is inserted in the joining cavity 16 of the mesh supporting frame 1 with the joining post portions 14 sticking out from the joining cavity 16. Thus, the mesh 2 can be positioned over and joined on the mesh supporting frame 1 in a tense state with the joining post portions 14 passing through openings of the periphery of the mesh 2. The insertion piece 141 can be formed with such a shape and size that it will form a loop when it is inserted in the joining cavity 16.

Or alternatively, there can be four insertion pieces 141 in assembly, the insertion pieces 141 are inserted in four corners of the mesh supporting frame 1 respectively, and the mesh 2 is joined on the mesh supporting frame 1 in a tense state through the joining post portions 14 formed on the insertion pieces 141.

From the above description, it can be seen that the present invention has the following advantages:

1. The mesh supporting frame of the present invention has several rear joining post portions, and the mesh is stretched to a tense state and joined on the mesh supporting frame with the joining post portions being passed through the openings of the periphery of the mesh. Therefore, the mesh will be certainly tense with excellent elasticity after injection molding is carried out to form the wrapping layer in order to firmly join the mesh to the mesh supporting frame. And, the mesh chair is even more comfortable to sit on.

2. The mesh supporting frame has a containing cavity next to the joining post portions. And, the periphery of the mesh is hidden in the containing cavity after it is joined to the
joining post portions therefore the periphery of the mesh can’t stick out to spoil the appearance of the chair after the wrapping layer is formed by means of injection molding.

[0040] 3. A pressing strip is inserted in the containing cavity of the mesh supporting frame after the periphery of the mesh is pushed and hidden in the containing cavity. Therefore, the wrapping layer can be even more firmly joined to the mesh and the mesh supporting frame.

[0041] 4. The pressing strip has many through holes thereon. Therefore, in injection molding, injected melted materials will flow into the through holes, and the wrapping layer will have post-shaped protrusions in the through holes, and will be more firmly joined to the pressing strip.

[0042] 5. The joining post portions of the mesh supporting frame become gradually narrower towards the free ends; and therefore can be easily passed through the openings of the periphery of the mesh.

What is claimed is:

1. A mesh supporting frame structure of a mesh chair, comprising a mesh supporting frame; the mesh supporting frame having a plurality of joining post portions thereon for connection to a mesh.

2. The mesh supporting frame structure of a mesh chair as claimed in claim 1, wherein the joining post portions exist on a rear side of the mesh supporting frame.

3. The mesh supporting frame structure of a mesh chair as claimed in claim 1, wherein the joining post portions exist on a front side of the mesh supporting frame.

4. The mesh supporting frame structure of a mesh chair as claimed in claim 1, wherein the joining post portions exist on a circumferential portion of the mesh supporting frame.

5. The mesh supporting frame structure of a mesh chair as claimed in claim 1, wherein the mesh supporting frame has a joining cavity, and the joining post portions exist in the joining cavity.

6. The mesh supporting frame structure of a mesh chair as claimed in claim 5, wherein the joining post portions have an insertion piece joined on a bottom part thereof, and the insertion piece is inserted in the joining cavity of the mesh supporting frame.

7. The mesh supporting frame structure of a mesh chair as claimed in claim 1, wherein the joining post portions each become gradually narrower towards one end thereof.

8. The mesh supporting frame structure of a mesh chair as claimed in claim 1, wherein the mesh supporting frame has a plurality of containing cavities next to the joining post portions.

9. The mesh supporting frame structure of a mesh chair as claimed in claim 1, wherein the mesh supporting frame has a hollow portion on a middle thereof, and a plurality of supporting ribs are joined on the mesh supporting frame; the supporting ribs bending rearwardly of the mesh supporting frame so that the mesh supporting frame has a front recessed portion in front of the supporting ribs.

10. An assembly structure of a mesh chair, comprising a mesh supporting frame;

   a mesh positioned over and joined on the mesh supporting frame; and

   a wrapping layer firmly joining the mesh and the mesh supporting frame together; the wrapping layer being formed with injection molding after the mesh is joined on the mesh supporting frame;

   the mesh supporting frame having a plurality of joining post portions thereon;

   the mesh being stretched to a tense state and joined on the mesh supporting frame with the joining post portions being passed through openings of a periphery of the mesh.

11. The assembly structure of a mesh chair as claimed in claim 10, wherein the mesh supporting frame has a hollow portion on a middle thereof, and a plurality of supporting ribs are joined on the mesh supporting frame; the supporting ribs bending rearwardly of the mesh supporting frame so that the mesh supporting frame has a front recessed portion in front of the supporting ribs.

12. The assembly structure of a mesh chair as claimed in claim 10, wherein the joining post portions each become gradually narrower towards one end thereof.

13. The assembly structure of a mesh chair as claimed in claim 10, wherein the mesh supporting frame has a plurality of containing cavities next to the joining post portions thereof, and a periphery of the mesh is received in the containing cavities.

14. The assembly structure of a mesh chair as claimed in claim 13, wherein a plurality of pressing strips are inserted in the containing cavities of the mesh supporting frame to press the periphery of the mesh received in the containing cavities.

15. The assembly structure of a mesh chair as claimed in claim 14, wherein the pressing strips have a plurality of through holes thereon.

16. The assembly structure of a mesh chair as claimed in claim 10, wherein the joining post portions exist on a rear side of the mesh supporting frame.

17. The assembly structure of a mesh chair as claimed in claim 10, wherein the joining post portions exist on a front side of the mesh supporting frame.

18. The assembly structure of a mesh chair as claimed in claim 10, wherein the joining post portions exist on a circumferential portion of the mesh supporting frame.

19. The assembly structure of a mesh chair as claimed in claim 10, wherein the mesh supporting frame has a joining cavity, and the joining post portions exist in the joining cavity.

20. The assembly structure of a mesh chair as claimed in claim 19, wherein the joining post portions have an insertion piece joined on a bottom part thereof, and the insertion piece is inserted in the joining cavity of the mesh supporting frame.

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